

THE LANCET

Rheumatology

Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Guaraldi G, Meschiari M, Cozzi-Lepri A, et al. Tocilizumab in patients with severe COVID-19: a retrospective cohort study. *Lancet Rheumatol* 2020; published online June 24. [https://doi.org/10.1016/S2665-9913\(20\)30173-9](https://doi.org/10.1016/S2665-9913(20)30173-9).

Tocilizumab in patients with severe COVID-19: a retrospective cohort study

Supplementary Table 1a. Key baseline factors by cohort

Characteristics	Recruiting center			P-value*	Total
	Modena	Bologna	Reggio Emilia		
	N= 354	N= 80	N= 110		N= 544
Age, years				0.653	
Median (IQR)	66 (55, 76)	68 (56, 78)	68 (59, 77)		67 (56, 77)
Gender, n(%)				<.001	
Female	109 (30.8%)	44 (55.0%)	32 (29.1%)		185 (34.0%)
Baseline PaO₂/FiO₂				0.006	
Median (IQR)	227 (126, 289)	255 (213, 310)	255 (155, 340)		239 (139, 306)
SOFA Score				<.001	
Median (IQR)	2 (0, 3)	2 (2, 3)	3 (2, 4)		2 (1, 4)
Follow-up, days				0.039	
Median (IQR)	9 (4, 15)	12 (6, 18)	8 (4, 14)		9 (4, 15)
Intervention, n(%)				<.001	
Tocilizumab subcutaneous	84 (23.7%)	4 (5.0%)	3 (2.7%)		91 (16.7%)
Tocilizumab intravenous	48 (13.6%)	24 (30.0%)	16 (14.5%)		88 (16.2%)
SoC	222 (62.7%)	52 (65.0%)	91 (82.7%)		365 (67.1%)
Events, n(%)					
Mechanical ventilation	54 (15.3%)	9 (11.3%)	27 (24.5%)	0.028	90 (16.5%)
Death	52 (14.7%)	16 (20.0%)	18 (16.4%)	0.494	86 (15.8%)

*Chi-square or Kruskal-Wallis test as appropriate

Supplementary Table 1b. Key baseline factors by intervention and cohort

Characteristics	Intervention			p-value*	Total N= 544
	Tocilizumab subcutaneous N= 91	Tocilizumab intravenous N= 88	SOC N= 365		
Age, years				0.017	
Median (IQR)	67 (55, 73)	63 (54, 72)	69 (57, 78)		67 (56, 77)
Gender, n(%)				0.206	
Female	28 (30.8%)	24 (27.3%)	133 (36.4%)		185 (34.0%)
Baseline PaO₂/FiO₂				<.001	
Median (IQR)	199 (123, 262)	145 (102, 229)	277 (191, 345)		239 (139, 306)
SOFA Score				<.001	
Median (IQR)	2 (1, 3)	3 (2, 4)	2 (0, 3)		2 (1, 4)
Follow-up, days				<.001	
Median (IQR)	12 (6, 17)	13 (7, 18)	8 (4, 14)		9 (4, 15)
Events, n (%)					
Mechanical ventilation	17 (18.7%)	16 (18.2%)	57 (15.6%)	0.705	90 (16.5%)
Death	7 (7.7%)	6 (6.8%)	73 (20.0%)	<.001	86 (15.8%)

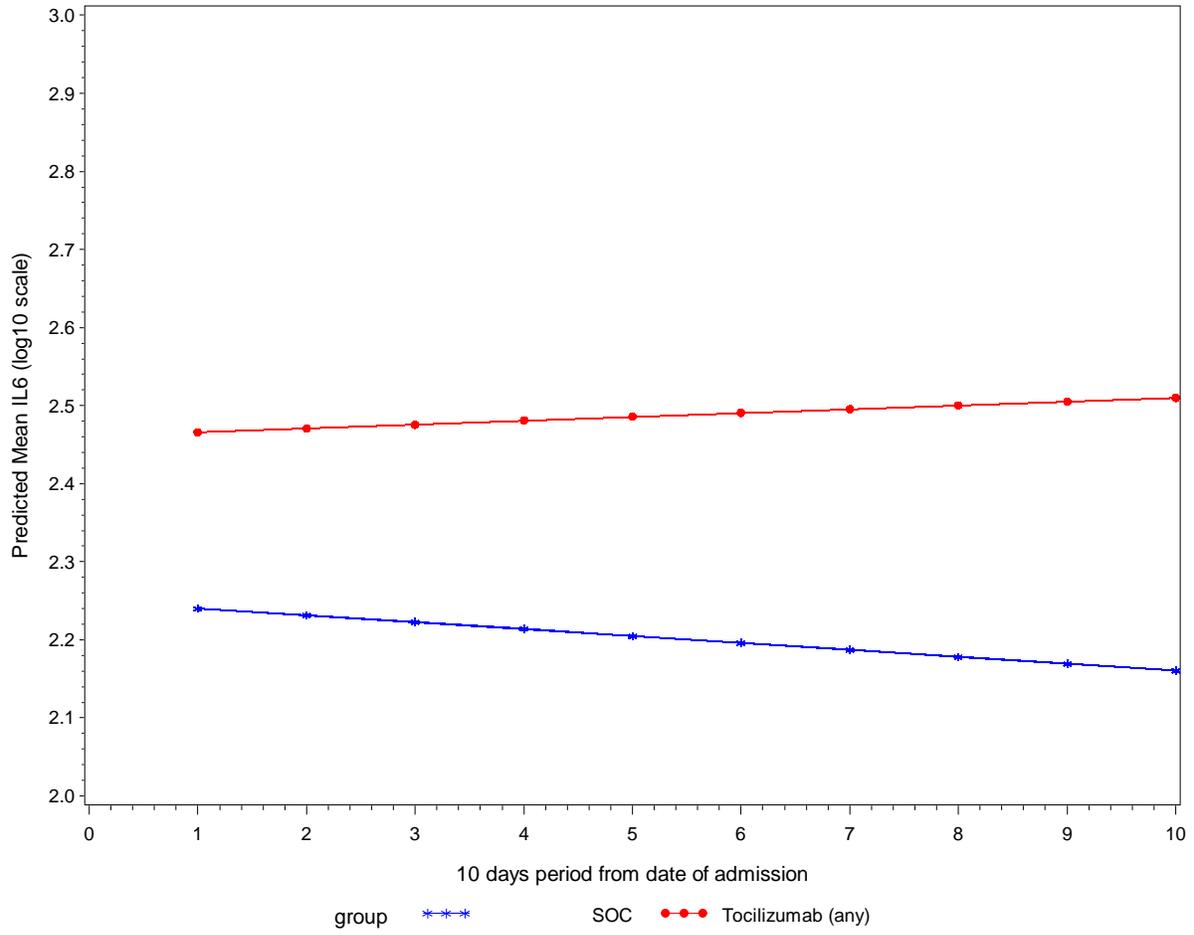
*Chi-square or Kruskal-Wallis test as appropriate

Supplementary Table 2. Means IL-6 values (log10 scale) from fitting a mixed linear model

<i>Treatment</i>	Estimates from the mixed model (Mean values 95% CI) - log10 scale					
	Baseline IL6	Difference in baseline	IL6 change/year	Difference in change/year	Adjusted* IL6 change/year	Adjusted* difference in change/year
Tocilizumab (any)	2.46 (2.35, 2.57)		0.00 (-0.00, 0.01)		0.00 (-0.00, 0.01)	
SoC	2.25 (2.11, 2.39)	-0.21 (-0.39, -0.03)	-0.01 (-0.02, -0.00)	-0.01 (-0.02, -0.00)	-0.01 (-0.02, -0.00)	-0.02 (-0.03, -0.00)
		0.020		0.006		0.004

*Adjusted for age, gender and SOFA Score

Supplementary Figure 1. Means IL-6 values (log10 scale) from fitting a mixed linear model

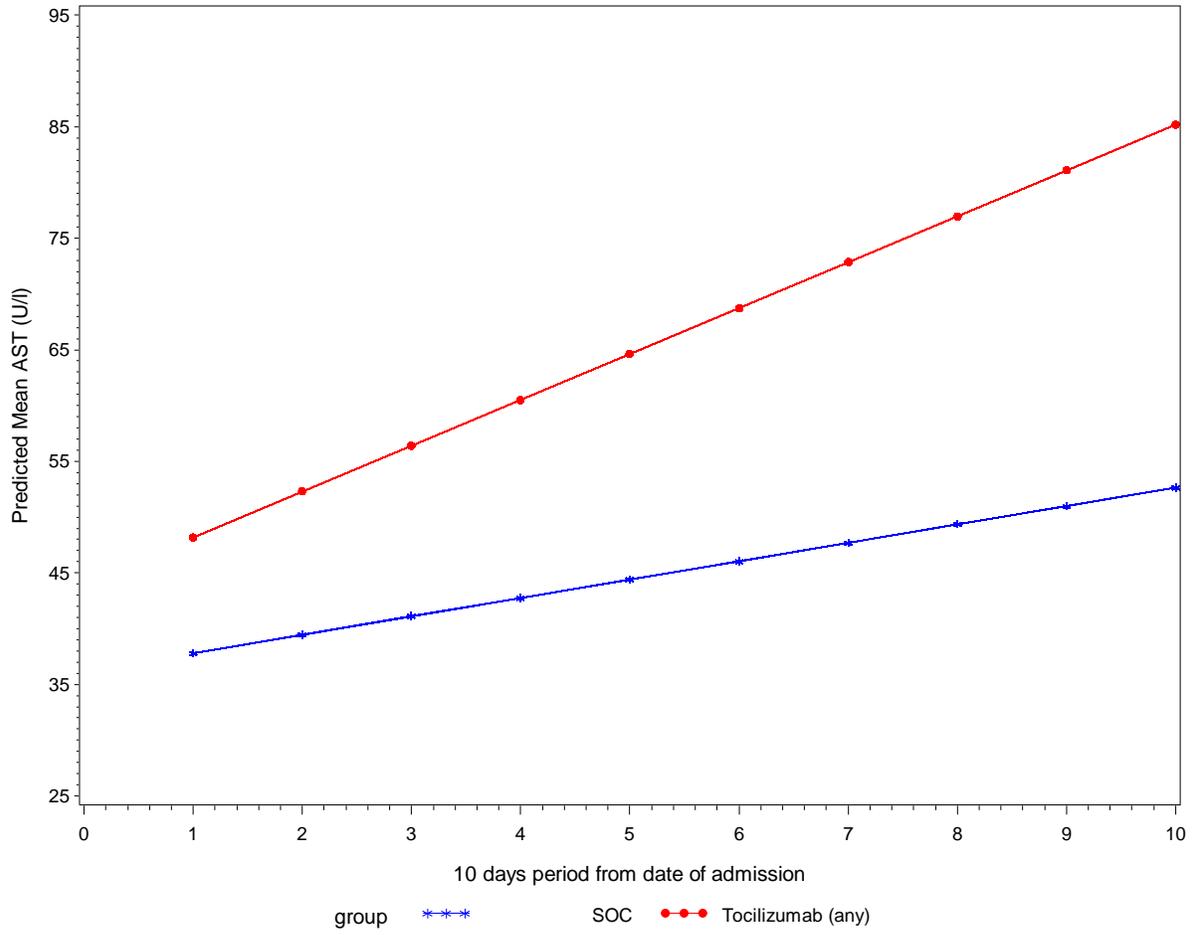


Supplementary Table 3. Means of aspartate transaminase (AST) values from fitting a mixed linear model

Estimates from the mixed model (Mean values 95% CI)						
	Baseline AST	Difference in baseline	AST change/year	Difference in change/year	Adjusted* AST change/year	Adjusted* difference in change/year
Treatment						
Tocilizumab (any)	44.05 (26.60, 61.51)		4.12 (0.97, 7.27)		4.12 (0.88, 7.36)	
SOC	36.17 (21.13, 51.21)	-7.88 (-30.8, 15.07)	1.65 (-1.00, 4.29)	-2.47 (-6.57, 1.63)	1.86 (-1.00, 4.72)	-2.26 (-6.57, 2.04)
		0.501		0.237		0.302

*Adjusted for age, gender and total SOFA Score

Supplementary Figure 2. Means AST values from fitting a mixed linear model



Supplementary table 4. Kaplan-Meier estimates reported in text of Results section

	Kaplan-Meier estimates of probability of outcomes			
	No. events by 7 days	Day 7 percent (95% CI)	No. events by 14 days	Day 14 percent (95% CI)
Endpoints - Overall				
Mechanical ventilation	84	16.4 (13.2, 19.6)	90	18.8 (15.1, 22.5)
Composite	129	25.7 (21.9, 29.6)	159	36.1 (31.2, 40.9)
Death	45	11.0 (7.9, 14.0)	69	21.1 (16.3, 25.8)
Endpoints - Stratified				
Mechanical ventilation -SOC	98	30.3 (25.2, 35.4)	117	41.5 (35.1, 47.9)
Mechanical ventilation -TCZ	34	19.6 (13.7, 25.5)	42	27.0 (19.6, 34.4)
Death -SOC	42	16.0 (11.5, 20.5)	60	28.7 (21.9, 35.4)
Death -TCZ	4	2.9 (0.1, 5.8)	9	8.5 (3.0, 14.1)